

## REMARKS

### **Disposition of Claims**

Claims 1, 2, and 4-7 are currently pending. Claim 1 has been amended to state that the ozone indicator is disposed in an ozone atmosphere having an ozone concentration of 1000 ppm or higher, and that the overcoat layer remains on the color-change layer in the ozone atmosphere. Support for this amendment can be found in the Specification in the paragraph spanning pages 20-21, particularly the second sentence.

### **Compliance with 35 USC 112, first paragraph**

Claims 1-2 and 4-7 were rejected under 35 USC 112, first paragraph as failing to comply with the enablement requirement. In particular, the Examiner states that an embodiment in which the overcoat layer is formed on part of the surface of the color changing layer would render the ozone indicator useless. While it is true that exposed areas of the color-changing layer would not be effective for measuring high ozone levels, any region of the color changing layer that is protected by the overcoat layer (*i.e.*, the complete surface or a fraction thereof) is useful for measuring ozone levels in the range of 1000 ppm or higher. It is not necessary that the entire overcoat layer protect the entire surface in order to the color change in the part that is covered.

In the invention as claimed, the part of the color-change layer that is covered with the overcoat layer can be used to indicate exposure to ozone. The invention features an overcoat layer formed on the color-change layer that prevents a color change in the color-change layer caused by the direct contact of a large amount of ozone to the color-change layer. As a result, the amount of the ozone reaching the color-change layer is regulated because the ozone must pass through the overcoat layer to reach the color-change layer.

Embodiments in which the overcoat layer is formed on part rather than all of the surface of the color changing layer are disclosed and enabled in the Specification on page 12, 3<sup>rd</sup> full paragraph through page 15, 1<sup>st</sup> full paragraph. In fact, there can be very good reasons for leaving part of the color-change layer exposed. For example, the exposed portion of the color-change can be used as a positive control to show that the color-change layer is still active or that it has not already been exposed to significant quantities of ozone.

In view of the foregoing, there is no reason the overcoat layer must cover the entire color changing layer and there may be good reasons for the overcoat layer to cover only part of the

color changing layer. As such, the Examiner's conclusion that providing the overcoat layer on only part of the color changing layer useless is incorrect. Moreover, the specification provides ample enabling disclosure of a device in which only part of the color changing layer is covered. Accordingly, withdrawal of the rejection under §112 is respectfully requested.

**Novelty and Non-Obviousness**

Regarding the §102 and §103 rejections set forth in the Office Action, the Applicants emphasize that the overcoat layer is permanently affixed to the color-changing layer to regulate the amount of ozone reaching the color-change layer. As noted above, claim 1 is amended to state that the ozone indicator is disposed in an ozone atmosphere having an ozone concentration of 1000 ppm or higher and that the overcoat layer remains on the color-change layer in the ozone atmosphere. None of the cited references (JP 11-140360; Omatsu, US 6,117,685; and Omatsu, US 6,336,964) contemplate using an overcoat layer to regulate the amount of ozone reaching the color-change layer so that ozone levels in the range of 1000 ppm or higher can be measured. Thus, none of these references disclose or suggest disposing an ozone indicator in such an ozone atmosphere, as presently claimed.

**Compliance with 35 U.S.C. 102(b)**

Claims 1-2, and 4-7 were rejected under 35 U.S.C. 102(b) as being anticipated by JP 11-140360. JP '360 merely discloses controlling the detection sensitivity and discoloration rate by changing the class and the blending ratio of a component such as an anthraquinone dye. There is no teaching or suggestion of controlling the detection sensitivity by providing an overcoat layer that remains on a color-change layer during measurement of ozone (see paragraphs [0036] and [0037] of JP '360).

Moreover, JP '360 does not teach achieving ozone concentration measurement in an atmosphere having an ozone concentration of 1000 ppm or more. Thus, the reference does not teach placing the ozone indicator in such an ozone atmosphere, as presently claimed. The ozone indicator according to JP '360 measures ozone concentration in an atmosphere containing a low concentration of ozone, *i.e.*, about 0.3 ppm (see paragraph [0051] of JP '360). Such an ozone indicator designed to have sensitivity in the low range of ozone concentration is not capable of measuring ozone concentrations as high as 1,000 ppm or more, and thus, would not be disposed in such an atmosphere.

The non-color-changing layer of JP '360 is not provided to control the detection sensitivity, but rather for use in distinguishing its color difference from the color-change layer (see paragraph [0031] of JP '360). In contrast, the overcoat layer of the present application permits measurement of high ozone concentrations by regulating the amount of the ozone that reaches the color-change layer. Thus, unlike the device of JP '360, the ozone indicator of the present invention is placed in an atmosphere having an ozone concentration of 1000 ppm or more. claims 1-2 and 4-7 are in compliance with 35 USC 102(b).

Another novel aspect of the invention derives from the overcoat layer remaining on the color-change layer while the device is disposed in the ozone atmosphere during measurement of high ozone concentrations. Thus, the Examiner's point about the color changing layer being made with the same materials and chemicals as the prior art does not negate the patentability of the claims.

Compliance with 35 U.S.C. 102(e)

The Examiner has rejected Claims 1-2 and 4-7 under 35 USC 102(e) as being anticipated by Omatsu (US 6,117,685) and Omatsu (US 6,336,964). Neither Omatsu '685 nor Omatsu '964 disclose anything about disposing an ozone indicator in an ozone atmosphere having an ozone concentration of 1000 ppm or higher. The ozone indicator according to Omatsu '685 and Omatsu '964 measures the ozone concentration in an atmosphere containing a low concentration of ozone, about 5 ppm at the highest (see Table 2 in Test Example 2). Such ozone indicators designed to have sensitivity in the low range of ozone concentration are not capable of measuring ozone concentrations as high as 1,000 ppm or more, and would not be placed in an atmosphere having such a concentration.

As with JP '360, the non-color-changing layers disclosed in Omatsu '685 and Omatsu '964 are intended simply for use in distinguishing their color difference from the color-change layer (see column 4, line 51, to column 5, line 17, of Omatsu'685; and column 4, line 41, to column 5, line 6, of Omatsu'964). Thus, Claims 1-2 and 4-7 are in compliance under 35 USC 102(e).

Compliance with 35 U.S.C. 103(a)

The Examiner has rejected Claims 1-2 and 4-7 under 35 U.S.C. 103(a) as obvious over JP 11-140360. As discussed above, neither JP 11-140360 nor any of the references cited in the Office Action teach or suggest placing the device in an atmosphere with very high concentrations

of ozone by forming an overcoat layer that remains on a color-change layer. Accordingly, the claimed invention would not have been obvious to a skilled artisan in view of the cited references. Thus, Claims 1-2 and 4-7 are in compliance with 35 U.S.C. 103(a).

### CONCLUSION

In view of the above, it is submitted that the claims are in condition for allowance. Reconsideration and withdrawal of all outstanding rejections are respectfully requested. Allowance of the claims at an early date is solicited. If any points remain that can be resolved by telephone, the Examiner is invited to contact the undersigned at the below-given telephone number.

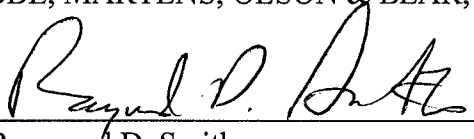
Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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